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BOOK ANNOUNCEMENTS

Elliott Mendelson, Introduction to Mathematical Logic, Third Edition (Wadsworth & Brooks, Monterey, California, 1987) 341 pages

Chapter 1: *The Propositional Calculus.* Propositional connectives. Truth tables. Tautologies. Adequate sets of connectives. An axiom system for the propositional calculus. Independence. Many-valued logics. Other axiomatizations. *Chapter* 2: *Quantification Theory.* Quantifiers. Interpretations. Satisfiability and truth. Models. First-order theories. Properties of first-order theories. Additional metatheorems and derived rules. Rule C. Completeness theorems. First-order theories with equality. Definitions of new function letters and individual constants. Prenex normal forms. Isomorphism of interpretations. Categoricity of theories. Generalized first-order theories. Completeness and decidability. Elementary equivalence. Elementary extensions. Ultrapowers. Nonstandard analysis. Semantic trees. *Chapter* 3: *Formal Number Theory.* Axiom system. Number-theoretic functions and relations. Primitive recursive and recursive functions. Arithmetization. Godel numbers. The fixed point theorem. Godel's incompleteness theorem. Recursive undecidability. Church's theorem. *Chapter* 4: *Axiomatic set theory.* An axiom system. Ordinal numbers. Equinumerosity. Finite and denumerable sets. Hartogs' theorem. Initial ordinals. Ordinal arithmetic. The axiom of choice. The axiom of regularity. Other axiomatizations of set theory. *Chapter* 5: *Effective computability.* Algorithms. Turing machines. Diagrams. Partial recursive functions. Unsolvable problems. The Kleene–Mostowski hierarchy. Recursively enumerable sets. Other notions of effective computability. Decision problems. *Bibliography. Index.*

Richard P. Stanley, Enumerative Combinatorics, Volume 1 (Wadsworth & Brooks, Monterey, California, 1986) 306 pages

Chapter 1: *What is Enumerative Combinatorics*? How to count. Sets and Multisets. Permutation statistics. The twelve old way. *Chapter* 2: *Sieve Methods.* Inclusion-exclusion. Examples and special cases. Permutations with restricted positions. Ferrers boards. V-partitions and unimodal sequences. Involutions. Determinants. *Chapter* 3: *Partially Ordered Sets.* Basic concepts. New posets from old lattices. Distributive lattices. Claims in distributive lattices. The incidence algebra of a locally finite poset. The Möbius inversion formula. Techniques for computing Möbius functions. Lattices and their Möbius algebras. The Möbius function of a semimodular lattice. Zeta polynomials. Rank-selection. R-labelings. Eulerian posets. Binomial posets and generating functions. An application to permutation enumeration. *Chapter* 4: *Rational Generating Functions.* Rational power series in one variable. Further ramifications. Polynomials. Quasi-polynomials. P-partitions. Linear homogeneous diophantine equations. The transfer-matrix method. *Appendix. Index.*

Gary Chartrand and Linda Lesniak, Graphs & Digraphs, Second Edition (Wadsworth & Brooks, Monterey, California, 1986) 359 pages

Chapter 1: Graphs and Digraphs. Graphs. Digraphs. Degree sequences. *Chapter* 2: *Connected Graphs and Digraphs.* Paths and cycles. Cut-vertices, bridges, and blocks. Eulerian graphs and digraphs. An unsolved problem in graph theory: The reconstruction problem. *Chapter* 3: *Trees.* Elementary properties of trees. n-Ary trees. Decomposition of graphs into acyclic subgraphs. *Chapter* 4: *Graph Embeddings.* Euler's formula. Characterizations of planar graphs. Nonplanar graphs. The genus of a

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